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(54) **MOP**

WISCHMOP

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(56) References cited:

EP-A- 0 537 963	WO-A-92/14064
WO-A-96/08194	BE-A- 780 974
FR-A- 943 666	FR-A- 2 199 451
FR-A- 2 271 795	FR-A- 2 403 773
GB-A- 1 260 859	GB-A- 2 191 937
GB-A- 2 255 712	NL-C- 37 445
US-A- 2 442 843	US-A- 3 417 420
US-A- 4 085 476	US-A- 4 114 224
US-A- 4 524 479	US-A- 4 531 251
US-A- 4 811 446	US-A- 4 928 342
US-A- 5 221 124	

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Description

[0001] The present invention relates to mops, more especially (but not exclusively) to mops which are suitable for domestic cleaning purposes.

[0002] Various types of mop are available for domestic cleaning. They all comprise a stick-like handle to which some form of cleaning head is attached. In one particular type of mop (commonly known as a strip mop), the head comprises strips of an absorbent material typically about 20 cms long. In a known type of strip mop, intended for use as a floor mop, the strips are secured in a hemispherical holder (usually formed from a plastics material) which has a cylindrical, recessed, extension into which the mop handle can be fitted. Strip mops of that type are described in US-A-4 114 224 and EP-A-0 537 963. When the strips become worn, the whole head (comprising the strips and the hemispherical holder) is disposed of and replaced by a new one. Such replacement heads, because of their shape, are comparatively awkward to package and handle, giving rise to problems and increased costs associated with storage and transportation. In addition, disposal of a worn head requires disposal not only of the strip material but also of the holder in which the strips are secured and which, often, will not be worn. The disposal of an entire item in that way, particularly one which is composed of mixed materials, is undesirable on environmental grounds.

[0003] A similar type of mop, which has textile strands instead of strips, is described in GB-A-2 255 712.

[0004] A known mop for industrial cleaning has a head which comprises an assembly of heavyweight cotton strings held together by a strip of material to which the strings are secured by stitching. The string assembly is clamped in a holder at one end of the mop handle and can be removed and replaced when it becomes worn. Another known mop of that type is described in US-A-4 531 251. Similar assemblies formed from non-woven fabrics instead of cotton strings have also been proposed, and one is described in the above-mentioned US-A-4 114 224.

[0005] There is also known, from FR-A-943 666, a cleaning brush having a replaceable head which is formed by a plurality of pieces of fabric. The fabric pieces are held in place, at one end of the handle of the brush, by a rod which extends lengthwise of the handle and is secured at the other end.

[0006] Another type of mop for domestic cleaning (commonly known as a sponge mop) has a cleaning head which comprises a rectangular piece of sponge material and, with some mops of that type, it is only the sponge material that needs to be replaced. The sponge material may, for example, be releasably-held by clips on a rectangular backing which forms a permanent part of the mop. Alternatively, in a known mop for cleaning windows, the sponge material is releasably-held in a pair of clamping jaws which form a permanent part of the mop.

[0007] From the point of view of a user, a strip mop has the advantage that, after it has been used for washing a surface, it can be rinsed and wrung out very effectively and used to dry the surface that has just been washed. The same degree of cleanliness and dryness is often difficult to achieve with other forms of mop, and especially with sponge mops.

[0008] The present invention is concerned with providing an improved mop of the strip mop type and, in particular, with providing a mop with a head which can be renewed at lower cost and with less wastage of materials than at present.

[0009] The present invention provides a mop as set out in claim 1.

[0010] By way of example only, strip mops in accordance with the invention will be described with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of a strip mop;

Fig. 2 is a perspective view of two components of the mop of Fig. 1, in a disassembled condition;

Fig. 3 is a plan view of one layer of a replaceable assembly for the mop of Fig. 1;

Fig. 4 is a cross-section of the head of the mop, in an assembled condition;

Fig. 5 is a plan view of a replaceable assembly for the mop of Fig. 1;

Figs. 6 to 15 show alternative replacement assemblies for the mop of Fig. 1;

Fig. 16 is a cross-section (similar to Fig. 4 but without the replaceable strip assembly) of a mop head with an alternative fixing system for the handle;

Fig. 17 is a view from above of the body portion of the mop head of Fig. 16;

Fig. 18 is a view from below of the body portion of Fig. 17;

Fig. 19 is a side view of the body portion of the mop head of Fig. 16.

Fig. 20 is a perspective view of a modified version of the mop shown in Fig. 1;

Fig. 21 is an exploded view, partly in cross-section, of the mop shown in Fig. 20;

Fig. 22 is a plan view of a layer of a replaceable assembly for the mop of Fig. 20;

Fig. 23 is a perspective view of a replaceable assembly for the mop of Fig. 20;

Figs. 24 to 26 show alternative replacement assemblies for the mop of Fig. 20;

Fig. 27 illustrates a step in the manufacture of the replacement assembly of Fig. 26;

Fig. 28 is a perspective view of part of a mop head incorporating a replacement assembly of the type shown in Fig. 26;

Fig. 29 is an exploded, perspective, view of another modified form of the mop;

Fig. 30 is a cross-section, similar to Fig. 4, of the head of the mop of Fig. 29, in an assembled condition;

Fig. 31 is an exploded view, partly broken away, of two components of another mop head;

Fig. 32 is a diagrammatic cross-section of a mop head using the components of Fig. 31;

Figs. 33 illustrates an alternative form of handle for use with the mop head shown in Figs. 16 to 19;

Fig. 34 illustrates a component of the handle of Fig. 33;

Fig. 35 is a diagrammatic cross-section showing the handle of Fig. 33 attached to a mop head similar to that of Fig. 26;

Figs. 36 to 38 illustrate other forms of replaceable strip assemblies;

Figs. 39 and 40 illustrate an alternative form of strip mop; and

Fig. 41 illustrates a replaceable strip assembly for the mop of Figs. 39 and 40.

[0011] The mop shown in Fig. 1 is a floor mop and has a head 101 comprising a plurality of fabric strips 102 (not shown full length) secured in a holder 103 at one end of a stick-like handle 104 (only part of which is shown). The strips 102 are formed from a conventional non-woven absorbent material, for example a thermo-bonded non-woven material or a coated non-woven material, and extend from the holder 103 for about 20 cm. The use of a non-woven absorbent material is not essential, however, and the strips could be formed from any other suitable web material, for example (in the case of a floor mop), an absorbent extruded web material. The strips 102 are a replaceable part of the mop, as will be described in greater detail below. The holder 103, on the other hand, is a permanent part of the mop, as is the handle 104. The holder 103, which will also be described in greater detail below, is formed from a plastics material (for example polypropylene filled with glass fibre), while the handle 104 is a conventional mop handle, about 120 cm long and formed, for example, from wood or a metal (which may be covered with a plastics material).

[0012] The holder 103, shown disassembled in Fig. 2, comprises a body portion 105 and a carrier 106 over which the strips 102 are hung when the mop head is being assembled. The carrier 106 has a flat, oval, base 107 (the largest and smallest diameters of which are about 4.5 cm and 3.6 cm respectively) on which are an upstanding socket 108 and two upstanding clips 109 which have hooked-shaped ends 109A (visible in Fig. 1). The clips 109, including the hook-shaped ends 109A, have a height of about 3.3 cm and the height of the socket 108 is about 2.5 cm. The socket 108, which is circular, is located centrally on the base 107 and the clips 109 are located at the edge of the base, one on each side of the socket. The cross-section of the internal recess 108A of the socket is generally rectangular with rounded ends. The body portion 105 is generally dome-shaped with a cylindrical extension 110, in the form of a socket about 4.3 cm long, for attachment to the mop handle 104. The outer periphery 111 of the dome-shaped part

of the body portion 105 is of the same oval shape as the base 107 of the carrier 106 but of a larger size (the largest and smallest diameters being about 7.5 cm and 6.5 cm respectively). Two recesses 113 on the outside of the body portion 105 contain respective openings 114 (about 0.4 cm by about 0.7 cm) in locations corresponding to those of the clips 109 on the base 107 while, within the body portion, a centrally-positioned pin 116 (not visible in Fig. 2) which is about 2.3 cm long, extends downwards in a location corresponding to that of the socket 108. The cross-section of the pin 116 corresponds in shape to the recess 108A in the socket 108.

[0013] The particular dimensions given above for the various parts of the holder 103 are those of a preferred form of the holder but are not essential. Both the shape and the dimensions of the holder can be changed if required.

[0014] The holder 103 is assembled (see Fig. 4) by locating the dome-shaped part of the body 105 over the carrier 106 so that the pin 116 is located in the socket 108 and the clips 109 are located in the openings 114 with the hooked-shaped ends 109A of the clips engaged in the recesses 113. The carrier 106 can subsequently be released from the body 105 by pushing the two hook-shaped ends 109A of the clips 109 inwards, towards the centre of the body 105, until they can be withdrawn through the apertures 114, thus allowing the carrier 106 to be removed.

[0015] The holder 103 is simple to clip together and release, and allows the strips 102 to be changed quickly and easily. Various modifications could, however, be made to the holder 103 of Fig. 1 while retaining the clip-together engagement between the carrier 106 and the body 105.

[0016] The extension 110 on the body portion 105 is threaded internally, at 118, and the end of the mop handle 104 is also threaded so that it can be screwed into the socket. Alternatively, the handle 104 may simply be a push fit in the extension 110. As yet another alternative (described below), the socket may be shaped to enable a suitable handle to be a snap-fit on the extension 110.

[0017] The mop strips 102 are provided by a plurality of layers 120 of web material, which are arranged one on top of another on the carrier 106 before the latter is located in the body portion 105 as described above. Each of the layers 120 is of a generally rectangular shape, as shown in Fig. 3, and is cut into strips 102 from each end inwards leaving a central section 122 which is uncut. A central aperture 123 is cut in the central section 122, together with two pairs of smaller apertures 124, 125. The larger aperture corresponds generally in size to the socket 108 on the carrier 106 and each pair 124, 125 of the smaller apertures corresponds generally in size (and in location relative to the larger aperture 123) to the clips 109. A layer of material 120 as shown in Fig. 3 is located on the carrier 106 by locating the aperture 123 over the socket 108 and one of the pairs of apertures 124, 125 over the clips 109. It will be appreciated

that, if the apertures 124 are used, the layer 120 will lie in one direction on the carrier 106 and, if the apertures 125 are used, it will lie in a direction at right angles. When the mop head is being assembled, a plurality of similar layers 120 is located on the carrier, some of the layers being positioned so that they lie in one direction on the carrier 106 and the rest being positioned to lie in the other direction. The carrier 106 is then located in the body portion 105, as already described, thereby trapping the central sections 122 of the layers 120 in the mop head 103 with the strips 102 of the layers hanging out through the space between the periphery of the carrier 106 and the larger periphery 111 of the dome-shaped portion of the body 105.

[0018] Typically, the layer of material shown in Fig. 3 is about 7 cm wide and the strips 120 at each end of the layer are about 20 cm long. The distance between the innermost ends of the strips 120 (i.e. across the central section 122) is similar to the width of the layer. The dimensions of the central section 122 are such that it will be substantially contained within the holder 103. The larger aperture 123 is about 1.3 cm in diameter and the smaller apertures 124, 125 are each about 0.6 cm in diameter.

[0019] Because the layers 120 hang from the holder 103 in two orthogonal directions, there are strips 102 around the whole periphery of the mop head, as in a conventional strip mop. In this case, however, it is possible to renew the strips 102 when they become worn: it is necessary only to release the carrier 106 from the body portion 105 as described above, and then to remove the layers 120 and replace them with new ones. Alternatively, if the strips 102 are not worn but only dirty, it is possible for the layers 120 to be washed and re-used.

[0020] Replacement layers 120 for a mop as shown in Fig. 1 are preferably available already assembled, as shown in Fig. 5. The replaceable assembly 126 shown in Fig. 5 comprises several layers 120, each as shown in Fig. 3, some (120A) of which lie in one direction and the rest of which (120B) lie in the direction at right angles. The central apertures 123 of the strips are all aligned with each other, and the apertures 124 of the layers 120A are aligned with the apertures 125 of the layers 120B (and vice versa). The layers are held together by two plastic tags 127 which extend through the complete assembly 126.

[0021] To insert the assembly 126 into the mop of Fig. 1, it is necessary only to place the whole assembly on the carrier 106, with the socket 108 located in the aligned central apertures 123 and the clips 109 located in one of the pair of aligned apertures 124, 125. The plastic tags 127 need not be removed. The body portion 105 is then positioned on the carrier to secure the assembly 126 in place.

[0022] Typically, the assembly 126 comprises nine layers 120 arranged in three groups each of three adjacent layers which lie in the same direction. The assem-

bly 126 thus comprises a top group of three layers 120A, a middle group of three layers 120B, and a bottom group also of three layers 120A. It will be appreciated, however, that the number of layers used to make up the assembly 126 (as well as the number used in each of the two directions) can be varied as required. Adjacent layers of the assembly could, for example, alternate in direction instead of being arranged in groups.

[0023] As a further alternative, the assembly of Fig. 5 could be formed from a plurality of layers 150 each having a cross-shaped form as shown in Fig. 6. Each arm of the cross is cut into strips from its extreme end, and apertures 151 which enable the layers 150 to be hung on the carrier 106 of the mop holder are provided in the centre of the cross. Replacement strips as shown in Fig. 6 can, however, not be cut from web material without a substantial amount of waste.

[0024] The replacement assembly 126 shown in Fig. 5 can, of course, be packaged in any suitable way (taking advantage, if required, of the fact that the assembly can be folded and does not, therefore, have to be packaged flat). It would, for example, be possible to fold down the layers of strips 102 (i.e. to form the assembly 126 into the general shape that it would have in a mop) before the assembly is packaged. The packaging may take any suitable form, extending from a complete enclosure to a simple band which surrounds the strips 102 and gathers them together. The assembly, whether packaged or not, may be supplied with instructions regarding insertion of the strip assembly in a mop holder. Alternatively, or in addition, the strip assembly 126 itself may carry the instructions in the form of printed material.

[0025] The tags 127 that are used to hold the layers of the assembly 126 together can be replaced by any other suitable securing means, provided that the alternative does not prevent the body portion 105 of the mop holder being located on the carrier 106 when the replacement assembly 126 is in position. The various layers of the assembly 126 could, for example, be held together by staples, or they could be stitched together.

[0026] It will be appreciated, however, that it is not essential for the replacement layers 120 for the mop of Fig. 1 to be provided in the form of a complete assembly as shown in Fig. 5. The replacement layers 120 could, for example, be available individually or in assembled groups of aligned layers which the user would then place on the carrier 106 in the desired orientation.

[0027] It will also be appreciated that the size and location of the apertures 123, 124 and 125 in the layers 120 are determined by the construction of the carrier 106 of the mop holder. If an alternative form of carrier 106 were used, the form of the layers 120 would be adjusted accordingly. When the carrier 106 has the form shown in Fig. 2, only one of the pairs of apertures 124, 125 is required in each of the layers and it would, therefore, be possible for the other pair of holes to be omitted. That has the disadvantage (from a manufacturing viewpoint) that the layers would not all be the same since, in

some of the layers, the holes 124 would be required while, in others, it would be the holes 125.

[0028] The strips shown in the drawings have wavy edges but that is not essential: they could, for example, have straight or zigzag edges. It is also not essential for the central, uncut, part 122 of each layer 120 to have generally the same width as the rest of the layer: the central part could be wider, or narrower, than the rest of the layer, depending on the size and shape of the mop holder 103 in which it is to be used.

[0029] For example, a replacement layer 152 could be similar to that shown in Fig. 3 but has straight edges and is cut into skip slits (as described in US-A-4 288 884) rather than continuous strips. It should also be understood that the replacement layers can, in fact, be cut or shaped in any other way suitable for providing the working portion of a mop head. The term "replaceable assembly" whenever used herein should, accordingly, not be taken to mean only a layer of web material which is cut into continuous strips but should be understood to include the case in which a layer of web material is shaped in any way suitable for providing the working portion of the head of a mop (including, for example, a pattern of slits as described in US-A-4 288 884).

[0030] Figs. 8 to 15 illustrate, by way of example, other replacement layers of web material which could be used in the mop head holder of Fig 2.

[0031] The layer 153 of Fig. 8 is also similar to that of Fig. 3 but, in this case, each end portion of the layer constitutes a single strip (i.e. there are no longitudinal cuts subdividing the layer across its width).

[0032] Figs. 9 and 10 show replacement layers 154 and 155 which correspond, respectively, to the layers 152 and 153 of Figs. 7 and 8 except that the width of each layer increases from the central portion 156 out towards each end. The replacement layer 157 of Fig. 11 is similar to the layer 155 of Fig. 10 except that an array of apertures 158 is formed in the end portions of the layer (i.e. in the parts of the layer that will form the working portion of the mop head).

[0033] Fig. 12 shows a replacement layer 159 which is circular rather than rectangular. Apertures 160 which enable the layer 159 to be hung on the carrier 106 of the mop holder (Fig. 2) are provided in the centre of the circular layer, and the remainder of the layer is cut into a plurality of radial strips 161. The replacement layer 162 shown in Fig. 13 is also circular but, unlike the layer 159 of Fig. 12, is not cut into radial strips. The replacement layers 163 and 164 of Figs. 14 and 15 are generally similar to the layer 162 of Fig. 13 but, in each case, have a shaped periphery.

[0034] The mop head holder 103 illustrated in Figs. 16 to 19 is the same as that shown in Figs 1, 2 and 4, except that the cylindrical extension 110 on the body portion 105 is provided with an external circumferential rib 130 which enables the mop holder to be attached to a handle (not shown) which has an external socket at one end. In that case, the extension 110 functions as a

spigot and is pushed into the socket on the handle until the rib 130 clips into a corresponding groove on the inside surface of the socket (or, alternatively, over a suitably-positioned lip on the socket). Preferably, the socket on the handle has a degree of resilience to enable it to receive the cylindrical extension 110: that resilience can, for example, be obtained by providing one or more longitudinally-extending slots in the socket, or by forming the socket from a resilient material. Typically, the rib 130 projects radially outwards from the surface of the extension 110 for about 1.0 mm and has a depth (i.e. axially of the extension 100) of about 2.0 mm.

[0035] Preferably, in such an arrangement, the connection between the mop head holder 103 and the mop handle prevents the holder from rotating on the handle: in Figs. 16 to 19, for example, the circumferential rib 130 is provided with two diametrically-opposed projections 131 (Figs. 17 and 19) which engage in suitable locations in the socket on the handle and prevent relative movement between the mop holder and the handle, particularly when the mop is in use. When the socket on the handle is formed with longitudinally-extending slots as described above, to enable it to be pushed over the extension 110, the projections 131 may engage in those slots. Typically, the depth of the projections 131 is the same as that of the rib but they project radially outwards from the surface of the extension 110 for about 5.0 mm. The width of the projections 131 in the circumferential direction, is about 3.0 mm.

[0036] The cylindrical extension 110 of Figs 16 to 19, like that of Fig. 1, is also an internally-threaded at 118 so that it can be used with a handle having a threaded end (and also a push-in handle), as well as a handle which is provided with a socket for engagement with the rib 130.

[0037] One form of handle 300 that can be used with the holder 103 is illustrated in Figs. 33 to 35. The handle 300 has a threaded end 301 which can be secured into the extension 110 to engage with the internal thread 118. To impart additional strength, and a more finished appearance, to the coupling between the handle 300 and the holder 103, the handle is provided with a sleeve 302 (shown separately in Fig. 34) which can slide along the handle and which is shaped, at its lower end, to fit around the outside of the extension 110 and clip onto the rib 130 as indicated, diagrammatically, in Fig. 35. In particular, the lower end of the sleeve 302 is of larger diameter, to fit around the outside of the extension 110, and has an internal groove 303 in which the rib 130 will engage, together with two diametrically-opposite longitudinal slots 304 in which the projections 131 will be located.

[0038] As an alternative, the end 301 of the handle 300 need not be threaded but could simply be a push-in fit in the extension 110. In that case, because it is not necessary to rotate the handle 300 and the holder 103 relative to one another to joint them together, the sleeve 302 can be integral with the handle so that pushing the

handle into the extension 110 results in the sleeve clipping onto the rib 130.

[0039] It will be appreciated that the external shaping of the extension 110 (in particular the rib 130 and projections 131) can be varied provided that corresponding changes are made to the clip-on socket on the mop handle or, in the case of the handle of Fig. 33, to the sleeve 302. For example, the number and shape of the projections 131 can be varied. In addition, it is not essential for the rib 130 to extend continuously around the extension 110; the rib could, for example, be broken in one or more places.

[0040] The mop head holder 103 shown in Fig. 1 has an oval shape, which is advantageous because it enables the mop head to reach more easily into corners and other constricted spaces. The oval shape is not essential, however, and the holder 103 could, for example, be circular.

[0041] The mop shown in Fig. 20 is generally similar, in external appearance, to that shown in Fig. 1. It differs, as can be seen from Fig. 21, in the form of the replacement strip assembly 250 and in the form of the carrier 251, within the holder 252, on which the replacement assembly is hung. In particular, the replacement assembly 250 comprises several layers, each as shown at 253 in Fig. 22 which are intended to be wrapped around the carrier 251, rather than hung over the carrier as in the mop of Fig. 1. The layer 253 shown in Fig. 22 is wider than that of Fig. 3, and is cut into strips from one end only, leaving an uncut portion 254 in the other end. A series of holes 255 is formed in the uncut portion 254 of the layer.

[0042] The carrier 251 of the mop shown in Fig. 20 is attached to the body portion 256 of the holder 252 in exactly the same manner as in Fig. 1 and, to that end, is provided with two upstanding clips 257 with hook-shaped ends 258 which click into openings 259 in recesses 260 in the body portion 256. In this case, however, the carrier does not have a centrally located upstanding socket but is provided with a peripheral skirt 261 on which are formed several outwardly-extending pegs 262 spaced at intervals around the carrier 251.

[0043] To assemble the mop head shown in Fig. 20, several layers 253 are placed one on top of another, as shown in Fig. 23 and then hung around the carrier 251 with the apertures 255 located on the pegs 262. The carrier 251 is then clipped into the body portion 256.

[0044] If it is subsequently required to replace the strip assembly 250, the carrier 251 can be released from the body portion 256 in the same manner as in Fig. 1.

[0045] Other replacement assemblies suitable for use in the mop head of Fig. 20 are shown in Figs. 24 to 26.

[0046] Fig. 24 shows a replacement assembly 350 which is generally similar to that shown in Fig. 22 but is substantially longer and is provided with a drawstring heading 351 to enable the assembly to be gathered to a length suitable to fit around the carrier 251 of the mop head (see Fig. 21). The pegs 262 of the carrier 251

would fit into conveniently-located apertures of the drawstring heading 351. The use of such a replacement assembly 350 may make it unnecessary to use several layers of strips 250 as described with reference to Fig. 23.

[0047] Fig. 25 shows a replacement assembly 352 which is similar to that of Fig. 24 but which is not cut into strips, while Fig. 26 shows an assembly 353 which is also similar to that of Fig. 24 but has an undulating edge 354 at the lower end of the strips 355 (i.e. the edge opposite the drawstring heading 356). Despite the more complex shape of the replacement assembly shown in Fig. 26, it is possible to produce such assemblies without increased waste of the web material from which the assemblies are cut. To illustrate how that can be achieved, Fig. 27 shows two assemblies 353 placed end-to-end. It can be seen from Fig. 27 that the undulating edges 354 of the two assemblies fit together and enable the two assemblies to be cut together, either cross-wise or lengthwise of the web material.

[0048] Fig. 28 is a perspective view showing a replacement assembly 353 located on the carrier 251 of Fig. 21, before the carrier is clipped into the body portion 256 of the mop head holder. The pegs 262 of the carrier are located in apertures of the drawstring heading 356 of the replacement assembly and are not visible, but the upstanding clips 257 can be seen. Fig. 28 also shows the visual effect achieved through the use of a replacement assembly having an undulating lower edge.

[0049] Figs. 29 and 30 show a further modification of the mop head shown in Fig. 20, in which the strip assembly 250 is as shown in Fig. 23, but the carrier 263 is of a different form, as is the body portion 264 of the holder, into which the carrier 263 is clipped. In this case, the carrier 263 has four upstanding clips 265 which can engage an internal, circumferential latch 266 in the body portion 264. A central upstanding spigot 268, having a rectangular cross-section, engages in a similarly-shaped socket 267 within the body portion 264, and prevents the carrier 263 from rotating within the body portion 264. To release the carrier 263 from the body portion 264, it is necessary only to push the carrier into the body portion (for example by pressing down on the mop handle) to release the clips 265 from the latch 266 so that the carrier can be withdrawn.

[0050] It will be appreciated that any of the replacement assemblies shown in Figs. 24 to 26 could be used in the mop head shown in Figs. 29 and 30.

[0051] Figs 31 and 32 show a mop head which is similar to that shown in Fig. 1 in that the carrier 320 over which the replacement strips 321 are hung comprises a flat oval base 322 which is clipped into a dome-shaped body portion 323. In this case, however, the base 322 carries only a central upstanding pin 324, the top of which is shaped to clip into a socket 325 located, in the body portion 323, in the base of the cylindrical extension 326 which receives the mop handle (not shown). The top of the pin 324 is cut into four sections 324a which

can be compressed together, simply by pulling the carrier 320 away from the body 323, to permit the pin 324 to be removed from the socket 325 and thus allow the carrier 320 to be removed from the body 323. In this case, the replacement strips 321 may be similar to those shown in Fig. 5 but, because only the larger central hole 123 is required, the four surrounding smaller holes 124, 125 can be omitted. Alternatively, the replacement strips may have any other suitable form provided, for example as illustrated in Fig. 36, with a central opening 327 to enable them to be located on the carrier 320. As a further possibility, the strips may have a form which is already known for use in mops in which the strips are not replaceable but are provided with a single opening to enable them to be secured in position in a mop head. For example, US-A- 4 114 224 describes, with reference to Figs 1 to 5 of that document, various mop strips having a single cross-shaped opening to enable them to be permanently secured in a mophead. Any of those strips would be suitable for use as replacement strips in the mop head illustrated in Figs. 3 and 32. It will be appreciated that the mop strips can be hung in any orientation.

[0052] Figs. 39 and 40 show a further form of mop head (Fig. 39 being a perspective view of the mop head removed from the handle 4 and Fig. 40 being a cross-sectional view on the line XIV-XIV in Fig 39). In this case, the holder 3 includes a generally-rectangular cover 50a with a cylindrical, internally-threaded, extension 56 in which the mop handle (not shown) is screwed. The underside of the cover 50a is formed with sockets 57 into which pins 58 on a support rail 59 are a snap fit. The support rail 59 carries a replaceable strip assembly 13 (shown removed from the mophead in Fig. 41). The assembly 13 of Fig. 41 comprises several layers of web material, each of an elongate rectangular shape, arranged one on top of each other and secured together, for example by stitching along two, spaced apart, lines 14 (only one of which is visible in Fig. 41) across the width of the rectangles. The strips 2 are cut into the layers, from the ends of the rectangles inwards towards the stitching lines 14 leaving the region 15 between the stitching lines uncut. Holes 16 are also cut through the layers of material in the region 15, in locations which correspond to the locations of pins 58 on the support rail 59 of the mophead. The strip assembly 13 is located on the support rail 59 with the pins 58 being positioned in the location holes 16 so that the strip assembly hangs down on either side of the rail. The rail 59 has a lip 60 into which the edge of the cover 50a will clip and which imparts a finished appearance to the holder 3. When the mop strips 2 become worn, the rail 59 is pulled away from the cover 50a as illustrated in Fig. 14 so that the strip assembly 13 can be replaced. The rail is then snapped back into position in the cover and the mop is again ready for use. As a modification, the support rail 59 could be configured to carry more than one set of strips in a side-by-side arrangement.

[0053] The replaceable strip assembly 13 described

above offers the advantage that, because it is generally rectangular, it is comparatively easy to handle and to package. It is also comparatively easy, and cheap, to manufacture. A mop using one of those replaceable assemblies, as shown in the drawings, requires only that the assembly should be replaced when the mop head becomes worn through use. The holder 3 of the mop head, in which the replaceable assembly is located is a permanent part of the mop, with the desirable consequence that there is less wastage of materials. Moreover, because the replaceable assembly can be separated from the holder it is possible for the assembly to be washed, if it should become soiled, and then put back in the mop.

[0054] Although each layer of the replaceable assembly shown in the drawings comprises a plurality of comparatively narrow strips 2, the width and number of the strips is a matter of choice. In an extreme case, each layer could comprise a single strip having the same width as the assembly. The individual strips 2 do not need to have straight edges as shown but could, for example, be formed with wavy or zigzag edges. It is also not essential for the layers to be generally rectangular in shape; they could, for example, be trapezoidal with the narrower end being intended to be held in the mop holder 3.

[0055] The number of layers of web material that can be stitched or cut at any one time may be limited and several such assemblies 13 may be required to fill the holder 3 of a mop. A suitable number of assemblies may, therefore, be packaged and sold together. The packaging may be of any suitable type, extending from packaging which completely encloses the replaceable assemblies to packaging in the form of a band which simply holds the assemblies together. Instructions are preferably provided with the replaceable assemblies regarding insertion of the assemblies in an appropriate holder in a mop (which need not be any of the mops illustrated in the accompanying drawings). Alternatively, or in addition, the assemblies themselves may carry the instructions in the form of printed matter on the assemblies.

[0056] It will be appreciated that many modifications can be made to the various mop heads shown in the drawings while maintaining, in each case, the possibility of replacing the mop strips without discarding the mop head holder.

[0057] For example, in the mop head holder of Fig. 1, the central upstanding socket 108 on the carrier 107 could be omitted in which case the replacement strips each require only one pair of holes positioned to allow the strips to be located on the upstanding clips 109. In that case, some at least of the strips may have a form which is already known (for example from EP-A-0537 963) for use in a mop in which the strips are not replaceable. Alternatively, the strips may be of the form shown in Fig. 37. Strips of that general form are already known for use in a mop in which the strips are not replaceable, that mop being available under the trade name "Scotch-

Brite" from 3M ESPANA, S.A. of Madrid, Spain. The upper surface of the carrier on which the strips are hung may be ridged, to assist in preventing any movement of the strips relative to the carrier.

[0058] It will be appreciated that the preferred replacement strips for the mop heads of Figs 1, 16, and 31, 32 are those which are cut into strips from each end leaving a central, uncut, portion in which holes are formed to enable the strips to be located in the mop head. It is, however, possible to use replacement strips of the general form shown in Fig. 38 (i.e. layers which are cut into strips from one end leaving an uncut portion at the other end in which holes are formed to enable the strips to be located in a mop head). Fig. 38 shows a replacement strip of that type suitable for the mop head of Fig. 1. It will be appreciated that, when replacement strips of that type are used, there will be twice as many layers to be held within the mop head.

[0059] Any of the replacement strips shown in Figs. 3, 22, and 36 to 38 could, as noted above, be cut in the manner illustrated in Fig. 7 or in any other appropriate manner.

[0060] The various mops shown in the drawings are intended for domestic use and in particular, for floor cleaning. Mops of similar design could, however, be used for industrial cleaning and for cleaning surfaces other than floors. Moreover, the replaceable assemblies, whether in strip form or otherwise, could be formed from a web material which is suitable for dusting or scouring, rather than washing, surfaces. The possibility thus exists of providing various forms of replaceable assembly for a single mop, each strip assembly being suitable for a particular purpose.

[0061] In some cases, the individual layers of web material from which a replaceable assembly is formed may be made by laminating together two or more layers of different web materials. Depending on the intended use of the mop, it may be desirable for the material of the replaceable assembly to be chemically-treated. For example, in a mop intended for dusting, the web material of the replaceable assembly may be treated with an anti-static agent whereas, in a mop intended for use on polished floors, the web material of the replaceable assembly may be impregnated with wax. In some cases, it may be desirable to use more than one type of material in the replaceable assembly. For example, to assist in removing difficult stains from floors, it may be advantageous to include one or more layers of an abrasive material, preferably a non-scratch material in the head of a mop. In the case of a mop as shown in Fig. 1, for example, a layer of abrasive material could be included in the replaceable assembly 102 so that it hangs on the outside of the other layers. That abrasive layer need not be cut into strips like the other layers, and need not be as long as those other layers. A suitable material for the abrasive layer is available, under the trade name "Soft Scour", from Minnesota Mining and Manufacturing Company of St. Paul, Minnesota, U.S.A.

Claims

1. A mop comprising a mop head and a stick-like mop handle (104), the mop head comprising:
 - a body part (105) attached at one end of the handle (104);
 - at least one layer of web material (120) which provides a working portion for the mop head; and
 - a carrier part (106) on which the web material (120) is located, the web material (120) having at least one aperture (123) in which the carrier part (106) removably engages;
 - wherein the carrier part (106) is clipped into the body part (105) so that the web material (120) is held therebetween;

characterised in that the carrier part (106), with the web material (120) thereon, is adapted to be separated from the body part (105) while the latter remains attached to the handle (104).
2. A mop as claimed in claim 1, in which the body part (105) is generally dome-shaped.
3. A mop as claimed in claim 2, in which the carrier part (106) has two upstanding clip members (109) which are releasably engageable in the dome-shaped body part (105), each clip member extending through a respective aperture (124, 125) in the web material
4. A mop as claimed in claim 2 or claim 3, in which the carrier part (106) comprises an upstanding socket (108) which extends through a respective aperture (123) in the web material and receives a pin (116) which extends from the body part (105).
5. A mop as claimed in any one of the preceding claims, in which the web material (120) provides a plurality of strips (102) of web material depending from the carrier part (106).
6. A mop as claimed in any one of the preceding claims, in which at least two elongate layers (120A, 120B) of web material are located on the carrier part (106) and are arranged to extend in different directions with the central parts of the layers located one on top of another.
7. A mop as claimed in claim 6, in which the layers (120A, 120B) of web material are secured together (127) to form an assembly removable from the carrier part (106).
8. A mop as claimed in any one of the preceding claims, in which a part of the each layer of web ma-

terial is cut into a plurality of strips (102) to provide said working portion for the mop head.

9. A mop as claimed in any one of the preceding claims, in which the body part (105) is removably attached to the handle (104).

Patentansprüche

1. Wischmop mit einem Mopkopf und einem stockartigen Mopstiel (104), wobei der Mopkopf folgendes umfaßt:

einen an einem Ende des Stiels (104) befestigten Körperteil (105);
mindestens eine Schicht aus Bahnmaterial (120), die einen Arbeitsteil für den Mopkopf bereitstellt; und
einen Trägerteil (106), auf dem das Bahnmaterial (120) angeordnet ist, wobei das Bahnmaterial (120) mindestens eine Öffnung (123) aufweist, in die der Trägerteil (106) herausnehmbar eingreift;
wobei der Trägerteil (106) so in den Körperteil (105) eingeklemmt ist, daß das Bahnmaterial (120) dazwischen festgehalten wird;

dadurch gekennzeichnet, daß der Trägerteil (106) mit dem darauf angeordneten Bahnmaterial (120) so ausgeführt ist, **daß** er von dem Körperteil (105) getrennt werden kann, während letzterer am Stiel (104) befestigt bleibt.

2. Mop nach Anspruch 1, bei dem der Körperteil (105) allgemein gewölbt ist.
3. Mop nach Anspruch 2, bei dem der Trägerteil (106) zwei aufrechtstehende Klemmglieder (109) aufweist, die in dem gewölbten Körperteil (105) lösbar in Eingriff gebracht werden können, wobei sich jedes Klemmglied durch eine jeweilige Öffnung (124, 125) im Bahnmaterial erstreckt.
4. Mop nach Anspruch 2 oder 3, bei dem der Trägerteil (106) eine aufrechtstehende Fassung (108) umfaßt, die sich durch eine jeweilige Öffnung (123) im Bahnmaterial erstreckt und einen sich vom Körperteil (105) erstreckenden Stift (116) aufnimmt.
5. Mop nach einem der vorhergehenden Ansprüche, bei dem das Bahnmaterial (120) mehrere vom Trägerteil (106) herabhängende Bahnmaterialstreifen (102) bereitstellt.
6. Mop nach einem der vorhergehenden Ansprüche, bei dem mindestens zwei längliche Schichten (120A, 120B) aus Bahnmaterial auf dem Trägerteil

(106) so angeordnet sind, daß sie sich in verschiedenen Richtungen erstrecken, wobei die mittleren Teile der Schichten übereinander liegen.

7. Mop nach Anspruch 6, bei dem die Bahnmaterialschichten (120A, 120B) aneinander befestigt sind (127) und so eine vom Trägerteil (106) abnehmbare Anordnung bilden.
8. Mop nach einem der vorhergehenden Ansprüche, bei dem ein Teil der/jeder Bahnmaterialschicht zu mehreren Streifen (102) geschnitten ist, um den Arbeitsteil des Mopkopfes zu bilden.
9. Mop nach einem der vorhergehenden Ansprüche, bei dem der Körperteil (105) am Stiel (104) entfernbar befestigt ist.

Revendications

1. Balai laveur comprenant une tête de balai et un manche de balai de type manche à balai (104), la tête du balai comprenant :

une partie de corps (105) attachée à une extrémité du manche (104),
au moins une couche de matériau en bande (120) qui fournit une portion de travail pour la tête de balai ; et
une partie de support (106) sur laquelle se trouve le matériau en bande (120), le matériau en bande (120) ayant au moins une ouverture (123) dans laquelle la partie de support (106) s'engage de manière amovible ;

la partie de support (106) étant encliquetée dans la partie de corps (105) de sorte que le matériau en bande (120) soit maintenu entre elles ;

caractérisé en ce que la partie de support (106), sur laquelle se trouve le matériau en bande (120), est prévue pour être séparée de la partie de corps (105) tandis que cette dernière reste attachée au manche (104).

2. Balai laveur selon la revendication 1, dans lequel la partie de corps (105) est généralement en forme de dôme.
3. Balai laveur selon la revendication 2, dans lequel la partie de support (106) a deux organes d'encliquetage verticaux (109) qui peuvent être engagés de manière amovible dans la partie de corps en forme de dôme (105), chaque organe d'encliquetage s'étendant à travers une ouverture respective (124, 125) dans le matériau en bande.
4. Balai laveur selon la revendication 2 ou la revendication 3, dans lequel les organes d'encliquetage (109) sont

cation 3, dans lequel la partie de support (106) comprend une douille verticale (108) qui s'étend à travers une ouverture respective (123) dans le matériau en bande et reçoit une broche (116) qui s'étend depuis la partie de corps (105).

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5. Balai laveur selon l'une quelconque des revendications précédentes, dans lequel le matériau en bande (120) fournit une pluralité de languettes (102) de matériau en bande suspendues depuis la partie de support (106). 10
6. Balai laveur selon l'une quelconque des revendications précédentes, dans lequel au moins deux couches allongées (120A, 120B) de matériau en bande 15 sont situées sur la partie de support (106) et sont prévues pour s'étendre dans des directions différentes, avec les parties centrales des couches situées les unes par-dessus les autres. 20
7. Balai laveur selon la revendication 6, dans lequel les couches (120A, 120B) de matériau en bande sont fixées ensemble (127) pour former un ensemble pouvant être détaché de la partie de support (106). 25
8. Balai laveur selon l'une quelconque des revendications précédentes, dans lequel une partie de la ou de chaque couche de matériau en bande est découpée en une pluralité de languettes (102) pour 30 fournir ladite portion de travail pour la tête de balai.
9. Balai laveur selon l'une quelconque des revendications précédentes, dans lequel la partie de corps (105) est attachée de manière amovible au manche (104). 35

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Fig. 1

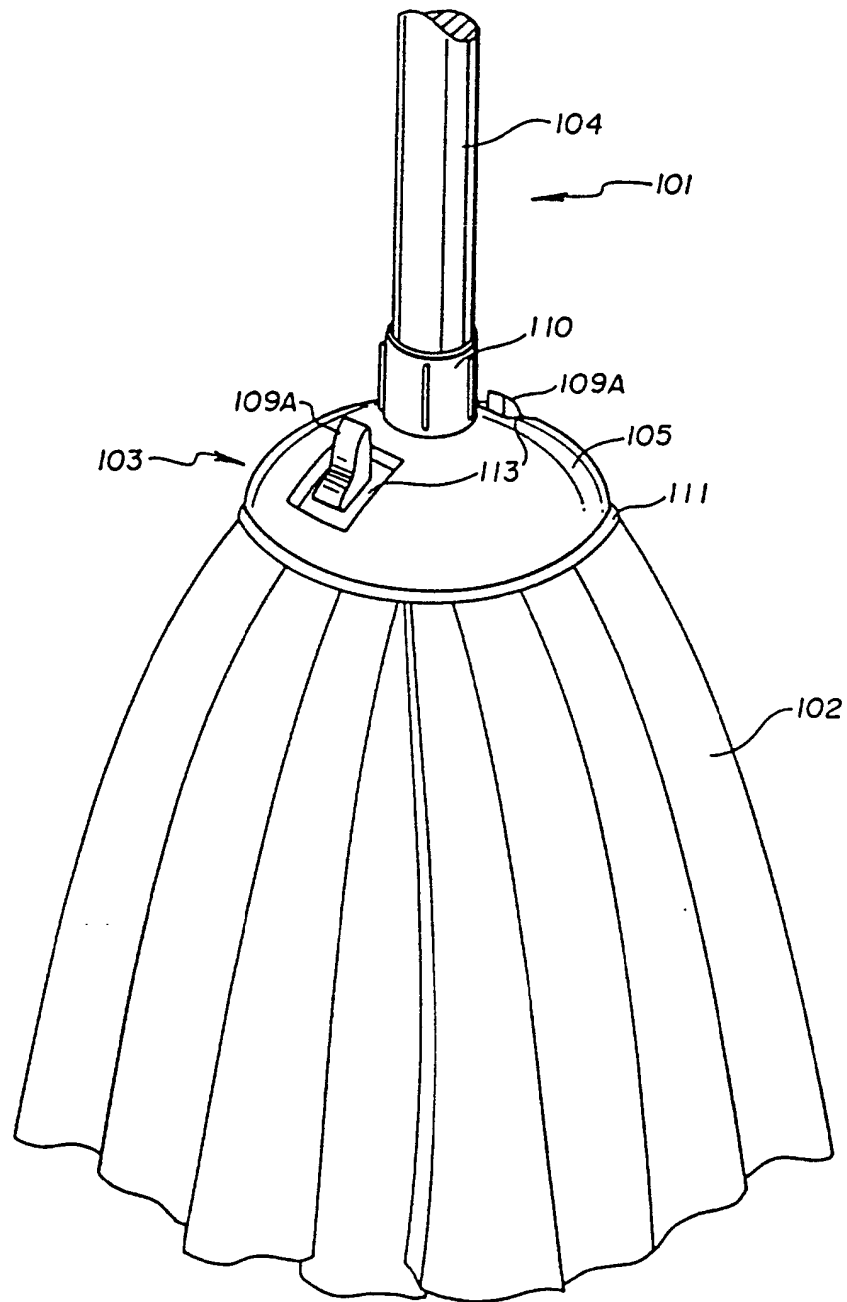


Fig. 2

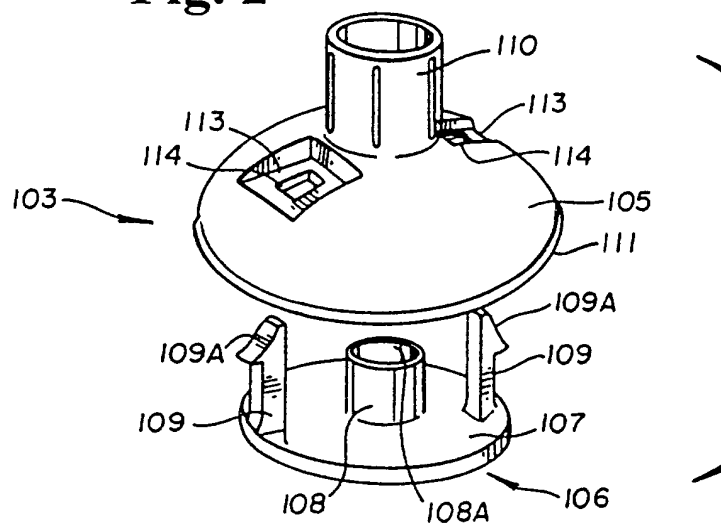


Fig. 3

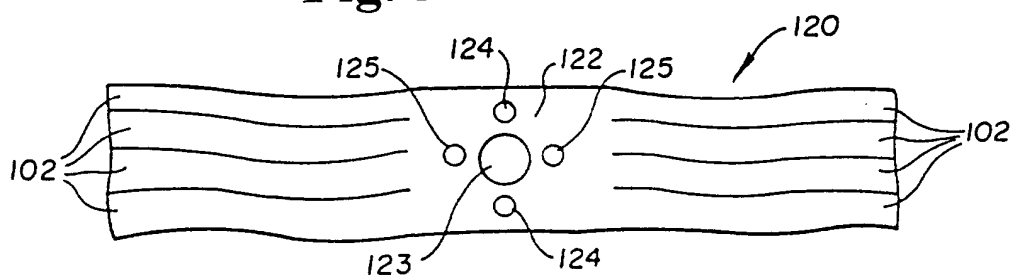


Fig. 4

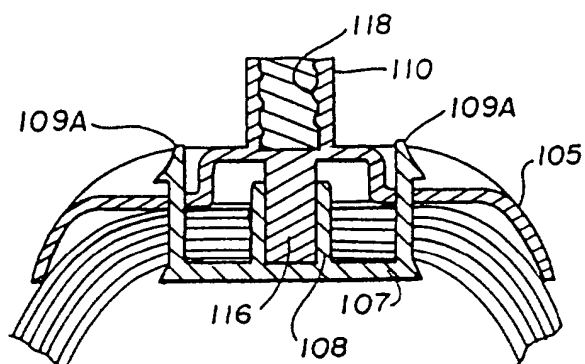


Fig. 5

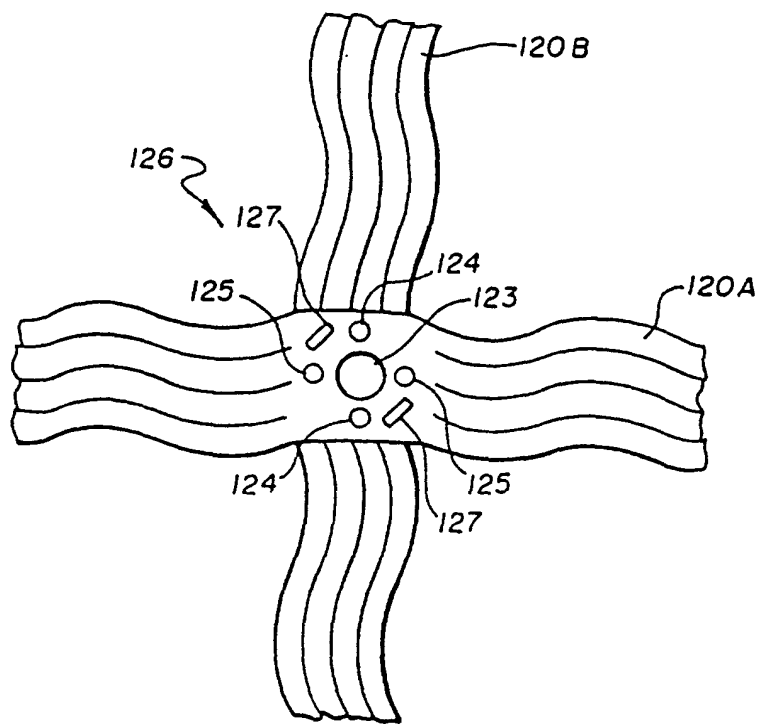


Fig. 6

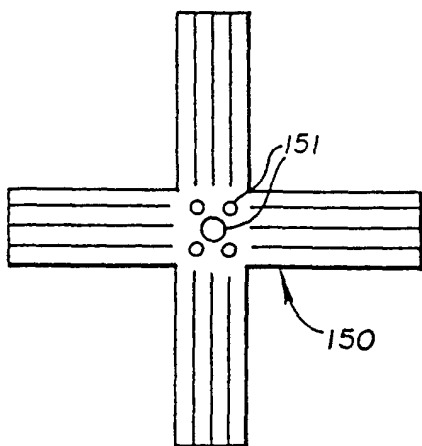


Fig. 7

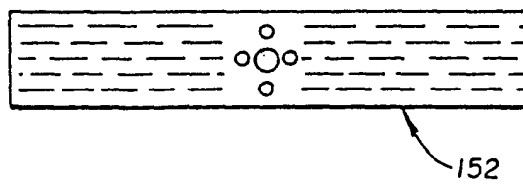


Fig. 8

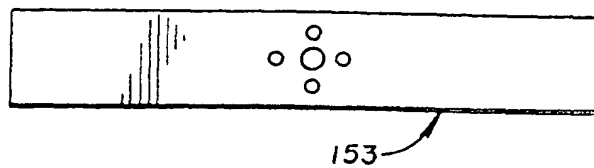


Fig. 9

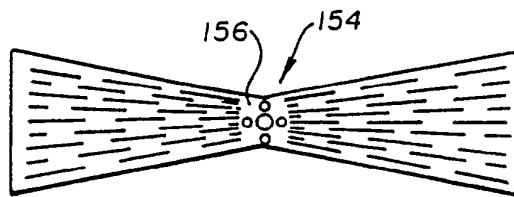


Fig. 10

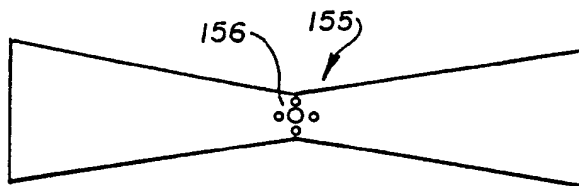


Fig. 11

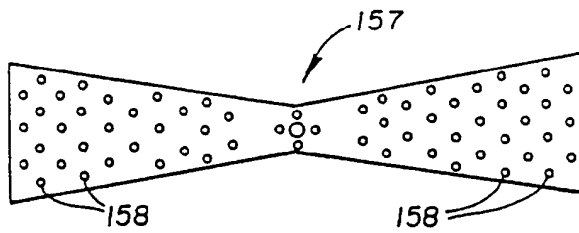


Fig. 12

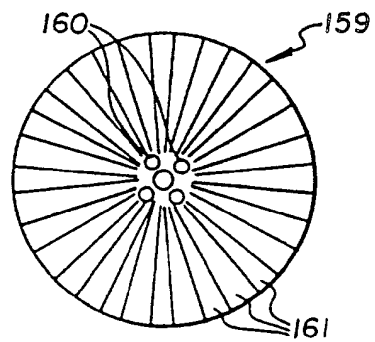


Fig. 13

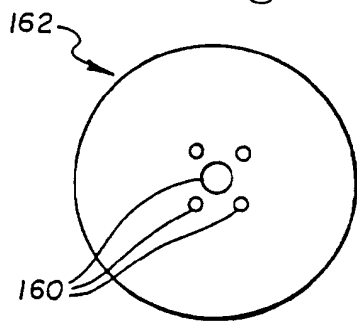


Fig. 14

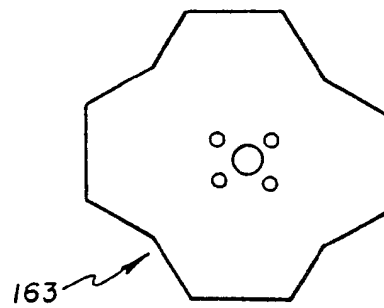


Fig. 15

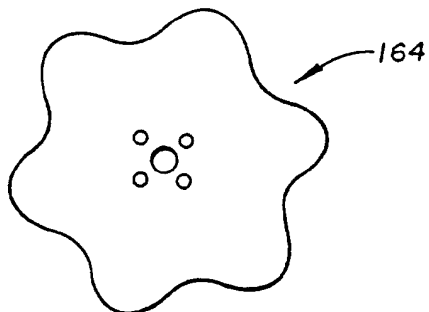


Fig. 16

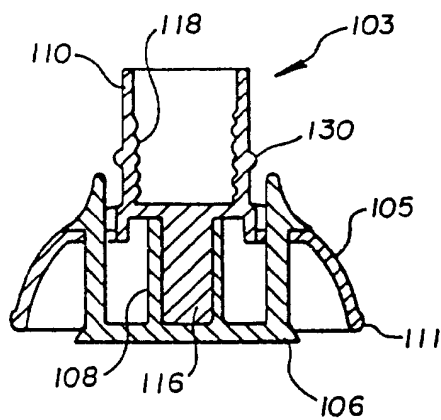


Fig. 17

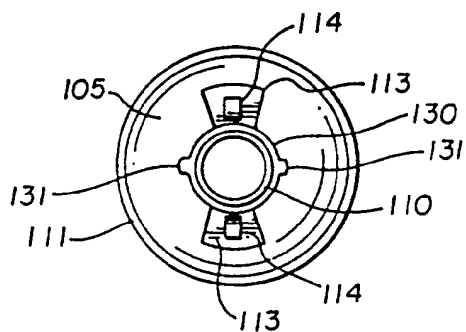


Fig. 18

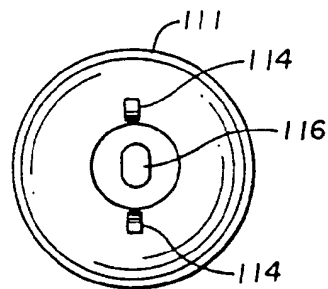


Fig. 19

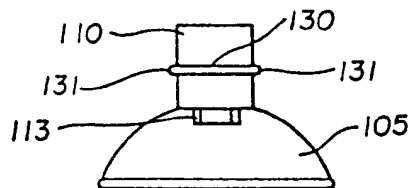


Fig. 20

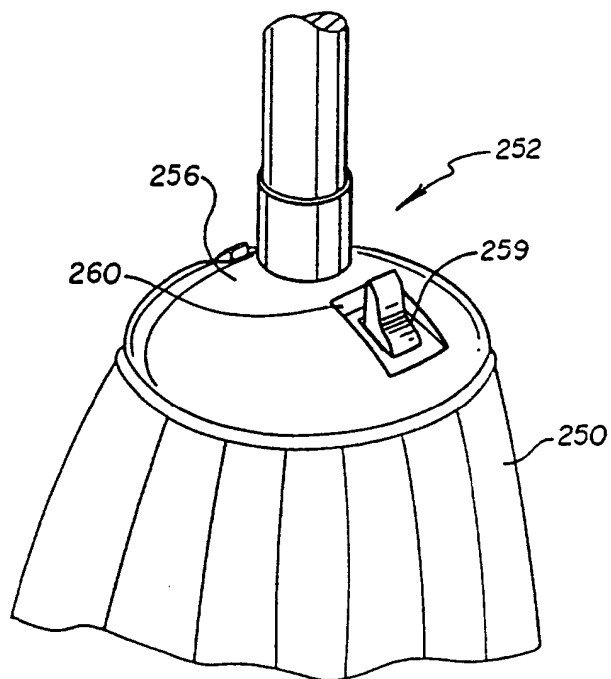


Fig. 21

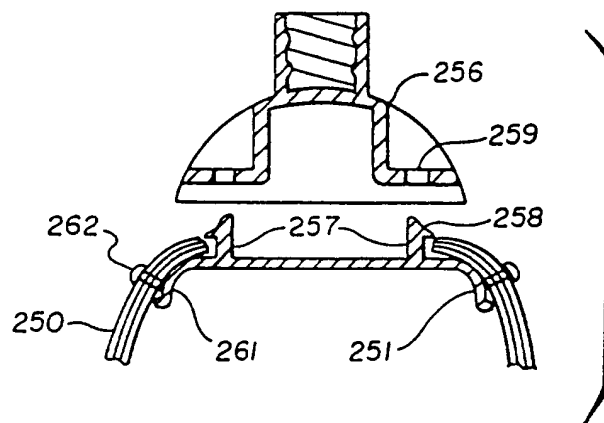


Fig. 22

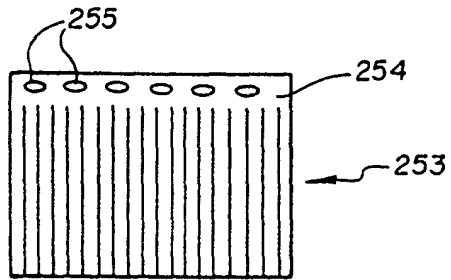


Fig. 23

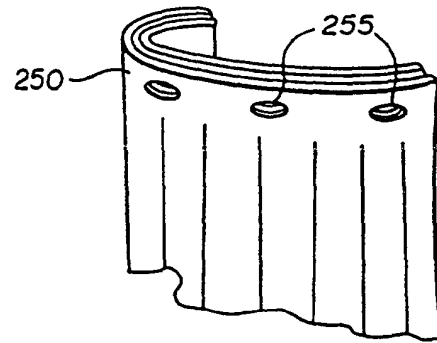


Fig. 24

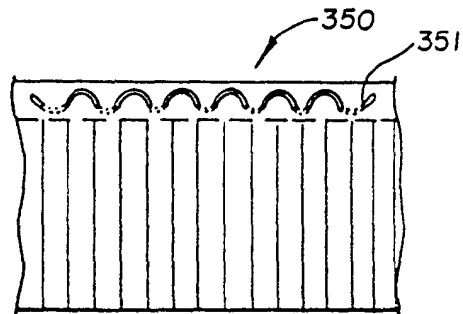


Fig. 25

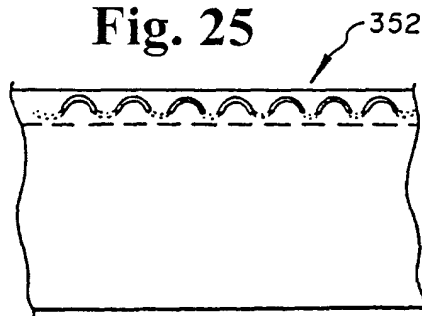


Fig. 26

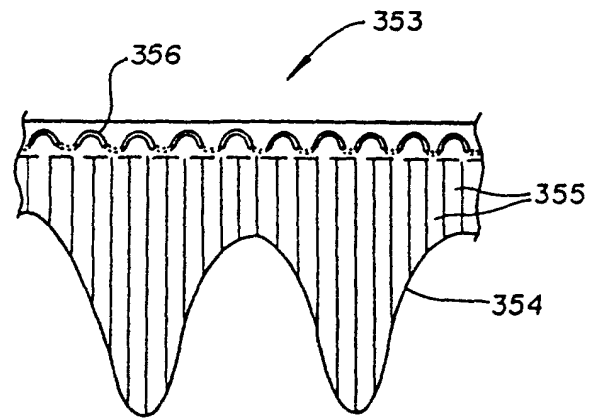


Fig. 27

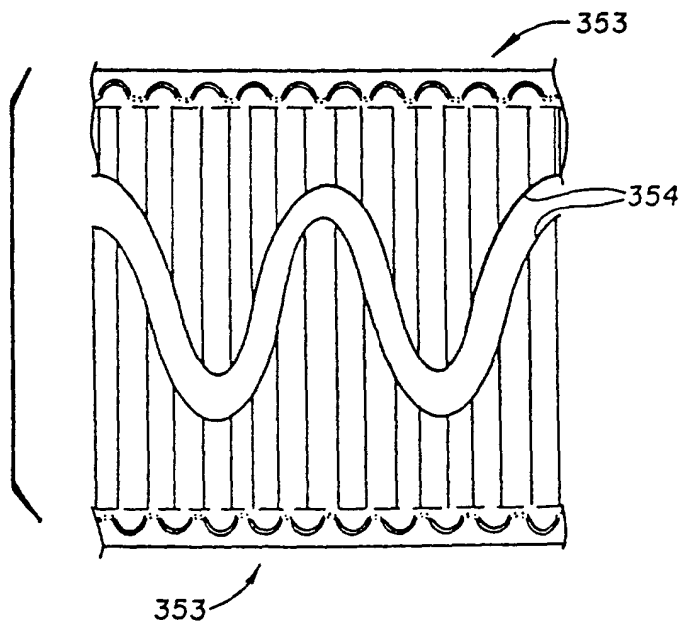


Fig. 28

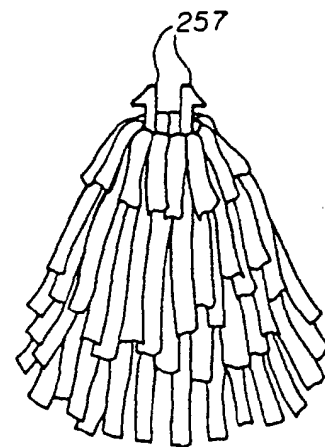


Fig. 29

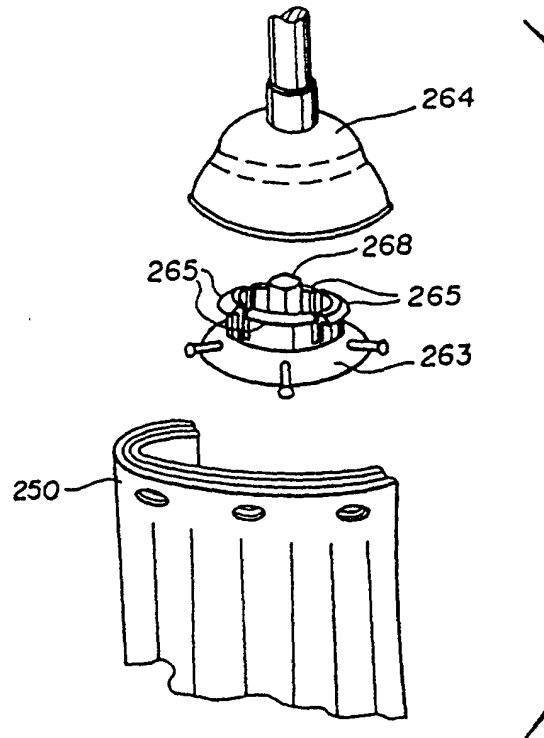


Fig. 30

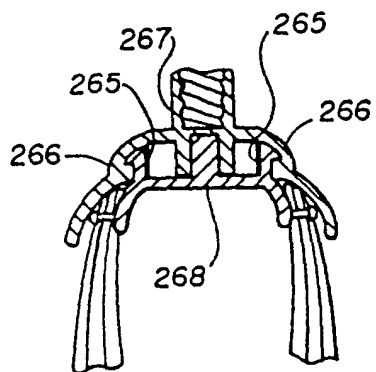


Fig. 31

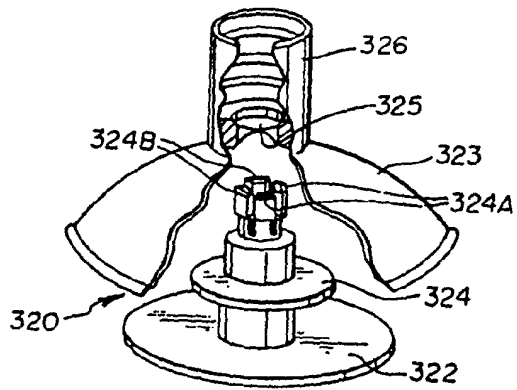


Fig. 32

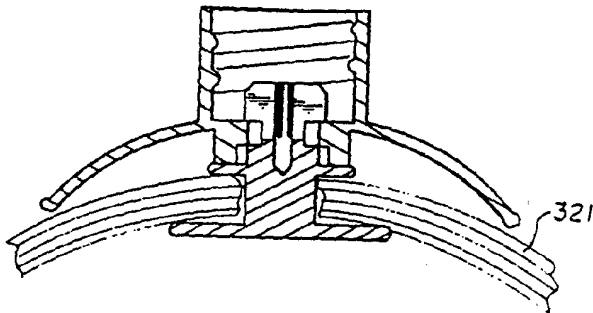


Fig. 33

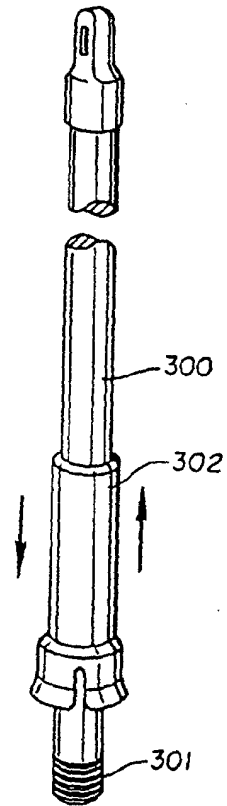


Fig. 35

Fig. 34

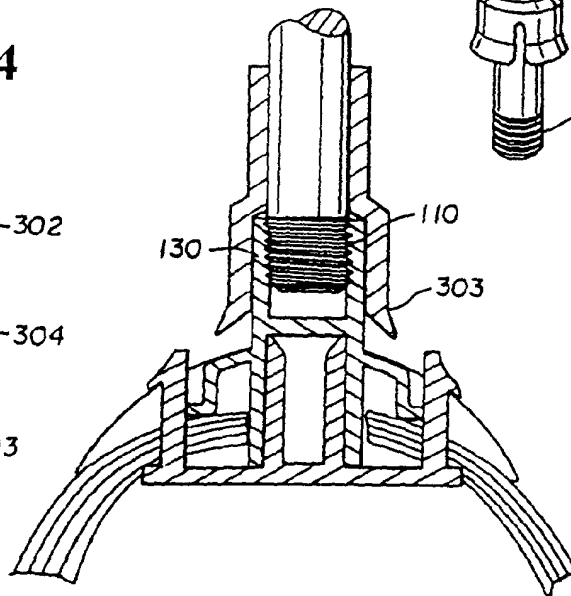
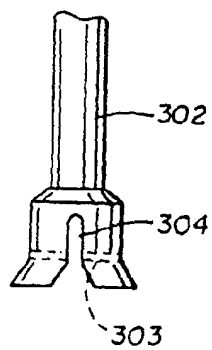


Fig. 36

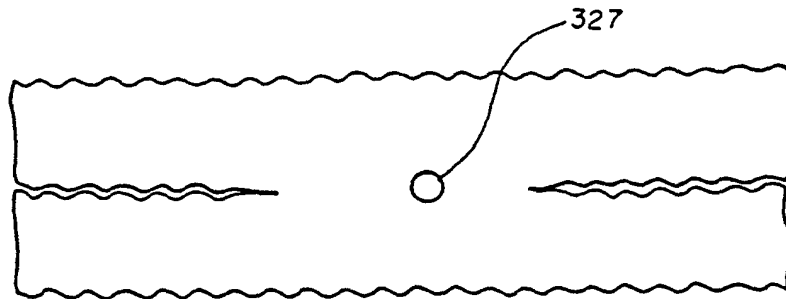


Fig. 37

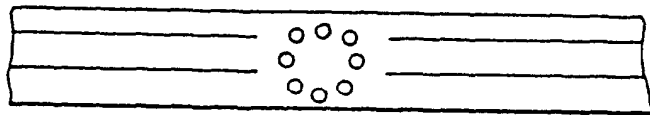


Fig. 38



Fig. 39

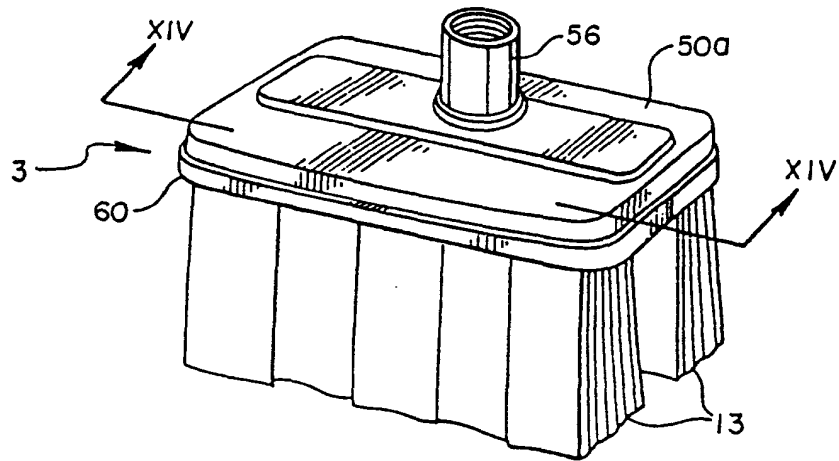


Fig. 40

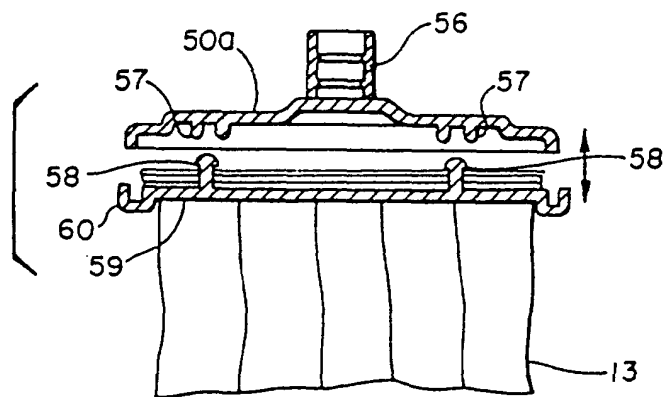


Fig. 41

